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NASA Collaboration Handbook: Principles and Best Practices

Background

Whether working in an environment of competition or directed work, successful collaboration is critical to achieving NASA's mission. This handbook attempts to provide NASA Program and Project Managers with a set of tools and strategies that can enable better collaboration across NASA and support overall mission success.

The best practices and principles contained in this handbook are the result of detailed study and analysis performed by two classes of NASA's Leadership Development Program (LDP). The 2003-2004 LDP Class initiated a study of various collaborative efforts in government and industry as a way of providing NASA Program and Project Managers with common principles that lead to successful collaborations.¹ The 2004-2005 LDP Class took on the responsibility to further this study by conducting detailed interviews with those involved in certain NASA collaborative efforts, reviewing published material on leadership and collaboration principles, and consolidating the overall findings into this handbook.

This handbook is intended to be a practical guide that provides the reader with a brief summary of the practices that best support effective collaborations. This information is shared so that it may be used by NASA Program and Project Managers, and others, to contribute to long-lasting mission success.

Why Collaborate?.

The collaboration study which underlies this handbook showed that collaboration can be effective in improving program or project success, if best practices are employed. And when collaboration is effective, it has many benefits:

- Internal collaborations between NASA Programs, Projects, and Installations can:
 - Increase the resources, knowledge, and talent applied towards achieving NASA's mission, as well as the synergy of complimentary expertise and abilities.
 - Promote the OneNASA concept by establishing trust and understanding among the different parts of NASA
- External collaborations with other Federal agencies, industry, academia, and non-profit organizations can:
 - Leverage the capabilities of other organizations to achieve mission success in the most efficient and cost-effective manner
 - Expand the understanding of the benefits of collaboration, providing opportunities for new and innovative collaborative efforts in a wide array of situations, including open competitions

¹ "Enhancing Mission Success in the 21st Century Through Collaboration", available at <http://ldp.nasa.gov>

Goals of this Handbook

The goals of this Handbook are to:

- Support NASA Program and Project managers in developing and executing effective collaborations
- Improve NASA's internal and external collaborations as a means to mission success
- Provide strategies and tools for developing, executing, and fostering effective collaborations
- Highlight best practices for ensuring on-going collaborations are effective

Principles and Best Practices of Effective Collaboration

After consolidating all the findings from the study, five main principles for developing and executing effective collaborations within NASA were identified:

1. Create a collaborative environment
2. Align needs
3. Develop personal relationships
4. Frame the collaboration
5. Secure management support

These principles are not sequential steps towards collaboration, nor are they a guarantee that collaboration will flourish. However, these are the principles that, at least to some degree, were universally found in the programs and projects that had extremely effective collaborative efforts. The following describes recommendations and best practices for each of these five principles.

1. Create a Collaborative Environment

Program and Project Managers are constantly faced with the task of trying to achieve mission success “as only NASA can,” but with finite resources. Therefore, it is important that Program and Project managers provide an environment where effective collaboration is recognized and rewarded

Best Practices:

- Encourage open communication (especially within NASA). Support the sharing of information about program or project activities and goals to engage others in achieving your goals.
- Encourage creativity within the organization – ask for idea on how to achieve program or project goals and take time to listen.
 - Provide a forum for creative thinking and an avenue for sharing ideas – e.g. dedicated staff meetings, office retreats, or periodic brainstorming sessions.
- Reinforce the need to establish trust – “do what you say”.
 - Track ideas and actions to ensure follow-up (i.e., keep an action log).
- Institutionalize Collaboration.
 - Include “teamwork” as part of performance plan and performance reviews, and take it seriously.
- Recognize effective collaboration – through means such as awards and peer recognition.
 - Work with Human Resources to understand all types of awards and recognition available.
 - Dedicate resources to support awards.
 - Publicly recognize collaboration – at staff or project meetings.
 - Schedule presentation time for a collaboration leader.

2. Align Needs

Collaboration will succeed when there is a perceived need for collaboration. The needs of all those involved in the collaboration must be addressed to ensure a sustained and valuable collaborative effort.

Best Practices:

- Evaluate and document overall goals and objective of your program or project, as well as resource and capability needs, so that you know where collaboration can be a benefit.
- Use a team approach when looking at areas where shared needs exist and needed resources can be exchanged, especially within NASA.

- Don't force collaboration for its own sake. It is a recipe for failure to force collaboration where alignment does not exist. Here is where it is critical to provide a forum for staff at the working level to share ideas on collaborative efforts that may benefit the program or project.
- Closely evaluate the differences in the organizational needs that may or may not be fulfilled by the collaboration, but which may interfere with some aspects of a successful collaboration.

3. Develop Personal Relationships

Picking the right people and providing for the development of personal relationships is absolutely critical to enhancing effective collaborations. The opportunity to develop trust and cultivate relationships, face-to-face meeting time must be provided at the initial stages of any collaborative effort.

Best Practices:

- Require and provide for face-to-face interactions.
 - Advocate and budget for this time and travel right from the start.
- Promote team-building activities, especially at the initial stages of collaboration.
 - Consider off-site meetings with a facilitator to allow for open discussion and promote individual buy-in to the team approach
- Pick the right people – ensure that they have effective interaction skills.
 - Use past performance, 360-degree assessments, coaching, and training to gauge and enhance skill.
- Consider co-location and/or detail assignments of team members.
 - Work with the Training and Development Office on using Agency supported development programs to further the career of individuals as well as to promote collaboration.
- Provide the tools and technologies to simulate as much as possible face-to-face interaction.
 - Videoconferencing
 - Desktop conferencing (e.g. WebEx)
 - Web-based tools
- Travel funds are a Priority. Budget for travel, and simplify travel authorizations as much as possible.

4. Frame the Collaboration

At the initial stage of a collaborative effort, it is important that the goals of the collaboration, and the roles and responsibilities of those involved, be clearly defined and agreed upon.

Best Practices:

- At the beginning of a collaborative effort, agree to and document the processes and procedures to be used in the collaboration.
 - In particular, discuss in detail and document the process by which decisions will be made that determine the direction of the collaborative effort.
- Provide for an agreed upon dispute resolution process, preferably through initial personal interaction between key people involved in the collaboration.
- As early as possible, identify potential impediments and specific mitigation strategies for the collaborative effort. This should ensure that significant issues are not raised for the first time after much effort has already been invested in the collaboration. For example, early on discuss the following:
 - Financial obligations and resource issues of each party
 - Specific milestone requirements
 - Define who bears the risk of loss due to nonperformance, damage, schedule slip, etc.
- Identify the types and level of risk acceptable to all involved in the collaboration, as well as any process for risk mitigation.
- Ensure that the workload required to support the collaborative effort is appropriately distributed among the collaborating parties.
- Document the Agreement to Collaborate.
 - For internal NASA collaborations, it is critical that the roles and responsibilities of those collaborating be clearly defined. Document the agreement in an operating plan that is signed by the appropriate managers.
 - For collaborations with external organizations, more formal documentation is recommended – i.e. a Space Act Agreement. With external collaborations, it is especially important to clearly and concisely define:
 - responsibilities of each party;
 - any schedule and milestone requirements;
 - key personnel (especially for dispute resolution);
 - dispute resolution process;
 - data rights, invention, or information disclosure issues;
 - financial obligations of each party;
 - handling of potential liabilities and risks;
 - term of the collaboration; and
 - right to terminate the collaboration as needed.
- Seek any institutional support or counsel as early as possible.

5. Secure Management Support

In addition to supporting a collaborative environment through recognition, awards, and/or performance planning, Program and Project managers must take an active, on-going role in supporting effective collaborative efforts.

Best Practices:

- Monitor the health of the collaboration through periodic reviews (primarily through discussion with the parties involved).
- Ensure and provide for visible senior management support.
- Use a team approach to working the collaborative effort, especially to mitigate the impact of employee turnover.

Conclusion

This Handbook describes simply and directly the principles and best practices of effective collaboration found in proven, successful programs or projects with collaborative efforts. It is the sincere hope of the LDP classes that contributed to the information in this handbook, that implementation of these principles and best practices by NASA Program and Project managers will enable NASA's Vision for Space Exploration.